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AUTHOR Davis, Stuart
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ABSTRACT

A distribution of the Italian definite articles "il" and "lo" is proposed that makes use of both Steriade's syllabification rules and a language-specific sonority hierarchy. The incorporation of these rules results in the generalization that the definite article "il" occurs before nouns or adjectives that begin with a consonant that is a member of the syllable onset while "lo" occurs before words that begin with an element that is not part of the syllable onset. This account of the distribution of the Italian definite articles "lo" and "il" is contrasted with the method developed by Radzinski (1987), and shortcomings in Radzinski's findings are identified. (DJD)

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Stuart Davis

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ITALIAN ONSET STRUCTURE AND THE DISTRIBUTION OF il AND lo*

Stuart Davis
Indiana University

1. Introduction

In Standard Italian there are two singular forms of the masculine definite article: il and lo. Their distribution appears quite anomalous. The form il occurs before nouns or (adjectives) that begin with a single consonant other than /S/ or /N/.<1> Further il occurs before a noun (or adjective) that begins with any of the following consonant clusters.

(1) Consonant clusters that il precedes

bl, br, pl, pr, fl, fr, dr, tr, kl, kr, gl, gr, pn

Sample data illustrating the distribution of il are provided in (2).

(2) il burro	'the butter'	il blocco	'the block'
il capitale	'the capital'	il braccio	'the arm'
il cibo [tS]	'the food'	il clima [kl]	'the climate'
il delitto	'the crime'	il cratere [kr]	'the crater'
il ferro	'the iron'	il drago	'the dragon'
il genere [dZ]	'the kind'	il flutto	'the surge'
il gorgo	'the whirlpool'	il frutteto	'the orchard'
il lusso	'the luxury'	il globo	'the globe'
il maestro	'the teacher'	il grado	'the grade'
il padre	'the father'	il plotone	'the platoon'
il regime	'the regime'	il premio	'the prize'
il sale	'the salt'	il traffico	'the traffic'
il talento	'the talent'	il pneumatico	'the tire'

The article lo occurs before nouns (or adjectives) that begin with a vowel or diphthong. (I follow Hall (1948) in considering a sequence of an unstressed high vowel followed by another vowel as a diphthong.) Additionally, lo occurs before nouns (or adjectives) that begin with the items in (3).

(3) Consonant phonemes that lo precedes <2>

sp, sb, st, sd, sf, sv, sk, sg, sl, sm, sn, ps, ks, S, N, ts, dz

Sample data illustrating the distribution of lo are provided in (4).

(4) lo spirito	'the spirit'	lo psicologo	'the psychologist'
lo sbaglio	'the mistake'	lo xilofono [ks]	'the xylophone'
lo studente	'the student'	lo zio [ts]	'the uncle'
lo sdentato	'the toothless'	lo zero [dz]	'the zero'
lo sfarzo	'the pomp'	lo scialle [S]	'the shawl'

lo svedese	'the Swedish'	lo gnomo [N]	'the gnome'
lo scampo	'the rescue'	lo iodio	'the iodine'
lo sgorbio	'the blot'	l'est	'the east'
lo slancio	'the outburst'	l'affare	'the affair'
lo smalto	'the pavement'	l'osso	'the bone'
lo snob	'the snob'	l'umore	'the mood'

The question addressed in this paper concerns whether or not there is any way of characterizing the group of sounds that il can precede and the group of sounds that lo can precede other than merely llisting them.<3> In the following section I answer this question affirmatively by adopting Steriade's (1982) syllable formation rules and by making reference to the sonority (or strength) hierarchy. The generalization that emerges is that il occurs with nouns (or adjectives) that begin with a consonant that is part of the onset; otherwise lo occurs. After presenting my analysis, I provide support for it from various phonological phenomena. I then compare my analysis of the distribution of articles with that of Radzinski (1987). I show that only the analysis argued for in this paper makes the right predictions when words with rare initial consonant clusters are considered.

2. Analysis

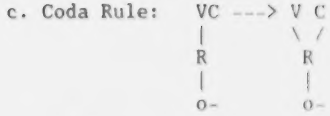
In this section I propose an analysis of the distribution of il and lo that makes crucial reference to the structure of syllable onsets. Let us first consider the article lo. Lo occurs before all vowel initial nouns as well as those beginning with diphthongs.<4> A first hypothesis might be that lo occurs with words beginning in a nonconsonant. A problem arises, though, regarding the consonant clusters listed in (3). Words beginning with these take the article lo. Why do these consonant clusters pattern like nonconsonants by taking the article lo? The reason I want to put forth in this paper is that the initial consonants in each of the clusters listed in (3), unlike those listed in (1), are not in fact incorporated into the onset. On this view lo occurs before any word not having an initial onset consonant while il occurs before words beginning with a consonant that is part of the onset. To see this consider the syllable formation rules proposed by Steriade (1982) given in (5), and the sonority (or strength) hierarchy that I am proposing for Italian given in (6).

(5) a. CV-rule: (C)V ---> (C)V (O=onset, R=rhyme, o-=syllable)

b. Onset Rule:

(subject to language-specific conditions on minimal sonority distance)

c. Coda Rule:



Rule (5a), the CV-rule, creates a syllable consisting of an onset and a rhyme where the rhyme consists of the the vowel (or other syllable peak), and the onset consists of the consonant immediately preceding the vowel.<5> Rule (5b), the Onset Rule, incorporates a consonant immediately before the onset as a member of that onset. Crucially, following Steriade (1982), the application of the Onset Rule may be subject to language-specific conditions on minimal sonority distance so that only certain consonants and not others are incorporated into the onset by the Onset Rule. Rule (5c), the Coda Rule, joins an unsyllabified consonant to the rhyme.

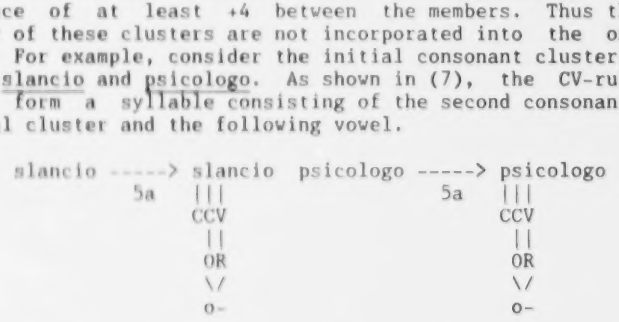
The sonority (or strength) hierarchy that I am proposing for Italian is in (6).<6> Given this hierarchy, we can account for the distribution of il and lo by putting a restriction on the Onset Rule (5b) which allows the rule to incorporate an initial consonant of a consonant cluster into the onset only if there is a sonority distance of at least +4 between the two consonants; otherwise, the initial consonant does not form part of the onset of the Italian syllable. The definite article il, then, occurs only if the following word begins with a consonant incorporated into the onset; otherwise lo occurs.

(6)

voiceless stops	voiced stops	noncoronal fricatives	coronal fricatives	n	m	liquids	vowels
1	2	3	4	5	6	7	8

None of the consonant clusters shown in (3) have a sonority distance of at least +4 between the members. Thus the first member of these clusters are not incorporated into the onset by (5b). For example, consider the initial consonant clusters in the words slancio and psicologo. As shown in (7), the CV-rule (5a) would form a syllable consisting of the second consonant of the initial cluster and the following vowel.

(7)

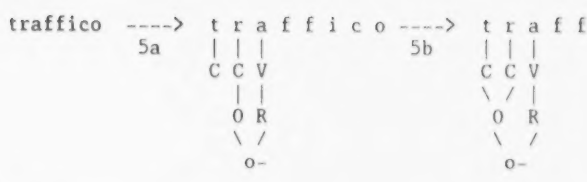


The Onset Rule (5b), however, would not apply. The word-initial consonants in these words are not incorporated into the onset of the first syllable. This is because the restriction on the sonority distance being at least +4 is not met by the initial

clusters of the two words in (7) or by any of the clusters shown in (3). (We discuss later why /S/ and /N/ are included with the clusters in (3).) Consider the two words in (7). The first word slancio begins with the coronal fricative /s/ which has a ranking of 4 on the sonority scale in (6). The following consonant /l/ is a liquid and it has a ranking of 7 on the sonority scale. The sonority distance between these two consonants is +3. Since the distance does not reach +4 the initial /s/ is not incorporated into the onset by (5b), and, consequently, the definite article that precedes slancio is lo. (Remember lo only occurs before words not beginning with a phoneme incorporated into the onset.) Similarly, lo occurs before psicologo because the initial /p/ is not incorporated into the onset by (5b). In psicologo, the initial consonant begins with the voiceless stop /p/ which has the ranking of 1 on the sonority scale. The following consonant /s/ has a ranking of 4 on the sonority scale. The sonority distance between these two consonants is +3. Since the distance between the two consonants does not reach +4 the initial /p/ is not incorporated into the onset, and, consequently, the definite article that precedes psicologo is lo.<7>

On the other hand, words beginning with the consonant clusters in (1) are preceded by the definite article il since the initial consonants in such words would be incorporated into the onset. Consider the words pneumatico and traffico. The word pneumatico begins with a voiceless stop which has a ranking of 1 on the sonority scale. The following consonant /n/ has a ranking of 5. Since the sonority distance between these two consonants is +4 the initial /p/ will be incorporated into the onset by the Onset Rule (5b) and consequently, the definite article that precedes it is il (which occurs before words beginning with an onset consonant). Similarly, il occurs before traffico because the initial/t/ is incorporated into the onset by (5b). In traffico, the initial consonant begins with the voiceless stop /t/ which has a ranking of 1 on the scale. The following consonant /r/ is a liquid and has a ranking of 7. Since the sonority distance between the two consonants is at least +4 (+6 in this case) the initial /t/ is incorporated into the onset, and consequently, the definite article that precedes it is il. In (8), the application of (5a) and (5b) to the first syllables of pneumatico and traffico is shown.

(8) pneumatico ---> p n e u m a t i c o ---> p n e u m a t i c o



In the analysis illustrated by (7) and (8) it is claimed that the initial consonants in clusters like those in (1) are incorporated into the onset, but the initial consonants of the clusters in (3) are not. This analysis can draw support from the correct predictions it makes about other aspects of Italian phonology. For example, the analysis presented here predicts that when the clusters in (1) and (3) occur intervocalically the clusters in (1) would be tautosyllabic (since (5b) would apply incorporating the initial consonant into the onset), but the clusters in (3) would be heterosyllabic (since (5b) would not apply). This prediction is generally born out. (See Chierchia (1986) and Burzio (to appear) for further discussion.)

Additional evidence for the analysis presented here comes from the different behavior of the clusters in (1) and (3) in syntactic redoubling environments. (On the issue of what constitutes a syntactic redoubling environment see Napoli & Nespor (1979) and Nespor & Vogel (1982).) In syntactic redoubling, a single word-initial consonant geminates if it is preceded by a word ending in an open syllable with a stressed vowel, as the example in (9a) illustrates. Syntactic redoubling has the effect of closing the preceding syllable. Thus the redoubled consonant in (9a), the [p] of pulito, closes (or forms the coda) of the second syllable of the phrase. Syntactic redoubling also occurs normally before clusters like those in (1) as (9b) shows, but it normally fails to occur before clusters like those in (3) as (9c) shows. (The examples in (9) are taken from Chierchia 1986.)

(9) a. palt'o pulito ---> [paltoppulito] 'clean coat'
b. citt'a triste ---> [tSittattriste] 'sad city'
c. citt'a sporca ---> [tSittasporka] 'dirty city'

The lack of syntactic redoubling in (9c) falls out from the analysis presented here. Since the /s/ in the initial s-cluster of sporca (in 9c) is a stray or extrasyllabic segment it will not form an onset with the following /p/ (unlike in (9b) where the /t/ in triste forms an onset with the following /r/), rather /s/ is incorporated into the preceding syllable by the Coda Rule (5c) (which applies before stray adjunction--see footnote 7). The /s/ then closes the second syllable of the phrase in (9c) preventing syntactic redoubling from applying. Thus the analysis presented here makes a prediction that the initial consonants of the clusters in (1) can undergo syntactic redoubling (as in (9b)) while those in (3) do not (as in (9c)). This prediction is generally born out.<8>

One matter still left to be accounted for is that lo occurs before some words that begin with a single consonant. These are words that begin with /S/, /N/, /ts/, and /dz/ and are exemplified in (4) by the examples lo zio, lo zero, lo scialle, and lo gnomo. In order to account for why lo occurs before these I follow Chierchia (1986) who argues that these consonants are underlyingly long. The main evidence for the underlying length of these consonants is that, unlike other consonants, these consonants are always long after vowels both word internally and over word boundaries. Some examples from Chierchia (1986) are shown in (10).

(10) screzio ---> [skrettsjo] 'disagreement'
fascia ---> [faSSa] 'band'
la zuppetta ---> [lattsuppetta] 'the soup (dim.)'
folle gnomo ---> [folleNNomo] 'crazy gnome'

On this account, the underlying representation of /S/ and /N/ is as in (11a) while the underlying representation of /ts/ and /dz/ is as in (11b).

(11) a. S N b. t s d z
/ \ / \ |\| |\|
C C C C C C C C

Words that begin with the consonants in (11) take the definite article lo because after the rules in (5) have applied to such words there is still an initial unincorporated C-slot. This is shown in (12a) for scialle 'shawl' and in (12b) for zero 'zero'.

(12) a. S a l e S a l e S a l e
/ \ | / \ | ----> / \ | / \ | ---> DNA ---> / \ | / \ |
C C V C C V 5a C C V C C V 5b 5c C C V C C V
| | | | | |/ | |
O R O R O R ⌄ R
\ / \ / \ / \ /
o- o- o- o-

b. d z e r o d z e r o
|\| | | | -----> |\| | | | (5b and 5c do not apply)
C C V C C 5a C C V C V
| | | |
O R O R
\ / \ /
o- o-

In the above examples, the initial C-slot is left unincorporated after the rules in (5) have applied. Thus words that begin with the consonants listed in (11) take the article lo.<9>

3. Comparison

So far I have presented an analysis accounting for the distribution of il and lo that makes crucial reference to Steriade's syllable formation rules in (5) and the sonority hierarchy in (6). To reiterate, the generalization that accounts for their distribution is that il occurs before nouns that begin with a consonant that is part of the onset while lo occurs before nouns beginning with a phoneme not incorporated into the onset.

Recently, Radzinski (1987) has proposed a very different analysis accounting for the distribution of the articles.<10> Simplifying somewhat, his proposal is that lo occurs before nouns with word initial consonant clusters containing an /s/. His proposal in fact accounts for all of the items listed in (3) except [S] and [N]. He accounts for the occurrence of lo before words beginning with [S] by arguing that [S] derives from underlying /sk/ clusters. The evidence for this is both diachronic and synchronic. The historical evidence is that many words with [S] in Italian were pronounced with [sk] in Latin. The synchronic evidence is that there are some alternations in modern Italian between /sk/ and /S/ such as nasco [sk] 'I am born' with nasci [S] 'You are born.' On Radzinski's account, then, nouns with initial [S] take the article lo since such words have an underlying /s/ in an initial cluster. His analysis does not account for the occurrence of lo before words beginning with /N/, but he does not consider this to be a problem since some variation between il and lo does occur before /N/-initial words (though not with my consultant).

While Radzinski's analysis seems conceptually simpler than the one I propose, I would like to point to a number of arguments for my analysis. First, my analysis of where lo occurs is more general in that on my account lo occurs before nouns that do not begin with an initial onset. This single generalization includes all words beginning with the items in (3) as well as all vowel-initial words. Radzinski must have two generalizations on the distribution of lo: that it occurs before vowel-initial words and that it occurs before words containing an /s/ in an initial cluster. Second, my analysis makes correct predictions that the clusters in (1) and (3) behave differently in intervocaalic environments and syntactic redoubling environments. Radzinski's analysis does not make these predictions. Third it is very strange that on Radzinski's account words with an /s/ in an initial cluster take lo but words with an initial /s/ followed by a vowel take il. If there is some property about an /s/ that attracts the article lo, why does it happen only when /s/ is part of an initial cluster? On my analysis a word with an initial /s/ follwed by a vowel takes il since the initial /s/ comprises the onset by the CV-rule in (5a). Relatedly, in Radzinski's account there is no motivated reason for why it is that /s/ clusters behave "oddly" (in that they always take lo) and not say /k/ clusters or /b/ clusters. On my analysis /s/ clusters behave "oddly" because /s/ cannot be separated from another consonant by +4 or greater given the sonority hierarchy in (6); thus it is automatic that /s/ clusters always take lo. And fourth, Radzinski's analysis and my analysis make a number of different

predictions on which definite article should surface when some rare words with unusual initial clusters are considered. Radzinski's analysis predicts that only words containing an /s/ in an initial cluster take the article lo. My analysis predicts that only words where the sonority distance between the initial consonants is less than +4 take the article lo. Consider the following Italian words that begin with unusual consonant clusters ft, pt, mn, gn and tl.

(13) a. ftalacene 'phthalazine'
pterodatillo 'pteradactyl'
mnemometro (device for measuring mnemonic processes)
gnu 'gnu'

b. Tlingit 'Tlingit'

Radzinski's analysis predicts that all these words should take the article il since /s/ is not part of the initial cluster. My analysis predicts that the words in (13a) should take the definite article lo since the sonority distance between the initial consonants is less than +4 while the word in (13b) should take the definite article il since the sonority distance between t and l is greater than +4. All the words in (13a) are cited by my consultant as taking lo. This is predicted by my analysis. The only one of the examples in (13a) that Radzinski discusses is ftalacene. He essentially is unable to account for it speculating that the definite article lo is chosen in this word on analogy with initial st. Of course, this does not answer why the definitie article wouldn't be chosen on analogy with initial fl. Another possibility for why the words in (13a) take the article lo is suggested by Peruzzi (1960). He suggests that uncommonly used words (with unusual initial clusters) take lo. On this account, Peruzzi would predict that the language name Tlingit should take the article lo since this is an uncommon word with an unusual initial cluster. (Initial /tl/ clusters do not otherwise occur in Italian.) On my analysis, the language name Tlingit should take the definite article il since the sonority distance between the initial consonants is +4 or greater (+6 in this case). Again my analysis makes the right prediction. My consultant, as well as several others I have asked, all put the article il before the language name Tlingit. That my analysis makes correct predictions about which article occurs before Tlingit as well as about which article occurs before the words in (13a) above is taken as strong evidence for an analysis which incorporates (5) and (6) over one like Rudzinski's which tries to account for the distribution of articles based on the presence of an /s/ in the initial cluster.

4. Summary

In this paper I have argued for an account of the distribution of the Italian definitie articles il and lo that makes use of Steriade's (1982) syllabification rules in (5) and the language-specific sonority hierarchy that I propose in (6).

By incorporating these the generalization that emerges is that the definite article il occurs before nouns or adjectives that begin with a consonant that is a member of the syllable onset while lo occurs before words that begin with an element that is not part of the syllable onset. This analysis accounts for all the data in (2) and (4), makes correct predictions about the differing behavior of the clusters in (1) and (3) in both intervocalic and syntactic redoubling environments, and, moreover, makes correct predictions about which article precedes words beginning with the unusual clusters in (13).

Footnotes

*I wish to acknowledge Gennaro Chierchia, Marta Garulli, Donna Jo Napoli, Donca Steriade, Livia Tonelli, and Irene Vogel for discussion on various aspects of this paper. All errors are my own responsibility. This work was supported by an NIH Training Grant NS-07134-09 to Indiana University at Bloomington.

1. The following transcription symbols are used: /S/ is a voiceless palatoalveolar fricative, /N/ is a palatal nasal, /ts/ is a voiceless dental affricate, /dz/ is a voiced dental affricate, /tS/ is a voiceless palatoalveolar affricate, and /dZ/ is a voiced palatoalveolar affricate. All other phonetic symbols have their usual interpretations.

2. There is some dialectal variation reported concerning these. Peruzzi (1960) observes that in Florence il can sometimes appear with nouns beginning in ts. Also, he notes that some speakers precede an initial pn cluster with lo rather than il. The patterning of il and lo reported in (1)-(4) reflects the intuitions of a consultant who is a speaker of Standard Italian from Rome.

3. It should be pointed out that the Italian masculine indefinite article and the Italian masculine plural definite article each have two forms. The indefinite article un and the plural article i pattern like il while the indefinite article uno and the plural article gli pattern like lo.

4. Fluctuations between il and lo before diphthong-initial nouns are reported in the literature. Dardano & Trifone (1985) observe that the English borrowing of the word 'weekend' can be preceded by either il or lo. Radzinski (1987) states that native judgments seem to vary as to whether iugoslavo 'Yugoslavian' is preceded by the indefinite article un or uno (the distribution of these parallels il and lo, respectively). It is possible that this variability may be due to an ambiguity with the first part of the initial diphthong. Speakers who precede these words with il may be analyzing it as a consonant (/y/ or /w/) and thus part of the onset. Speakers who precede these words with lo are analyzing it as the on-glide of the vowel and thus part of the nucleus.

5. The status of onset and rhyme as subsyllabic constituents has been questioned by Clements & Keyser (1983). Davis (1985) presents evidence for onset, nucleus, and coda being subsyllabic constituents. Since the constituent status of the rhyme is not

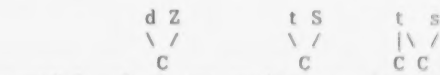
relevant for the Italian data under consideration it will be assumed for convenience.

6. I am assuming that the details of the sonority hierarchy are language specific. For this reason it is probably more appropriate to refer to sonority hierarchies as strength hierarchies (as in Vennemann 1972) since these hierarchies are usually based on data from synchronic phonology and may not in fact reflect the actual sonority of the sounds in the language. A good example of this is Haddad (1984) who argues for a sonority hierarchy for Lebanese Arabic based on data from vowel epenthesis in which the nasal /m/ is less sonorant than /l/ but more sonorant than /r/. It is unlikely that such a hierarchy reflects the actual sonority of these sounds.

7. It is assumed that a late rule of stray adjunction would apply to the initial consonant of words like those in (7) so as to incorporate it into the initial syllable.

8. The data concerning the cluster pn is problematic. My analysis predicts that the word-initial /p/ should redouble in a phrase like "cerc'o pneumatici". However, this does not seem to happen. It is possible that clusters whose members differ by just +4 may have some of the characteristics of clusters whose members differ by less than +4.

9. Chierchia (1986) observes that in the Roman dialect /dZ/ is always long intervocalically but /tS/ is not. Nonetheless, words that begin with initial /dZ/ (like those with initial /tS/) take the article il unlike the other segments in (11). To account for this it is posited that /dZ/ has the representation shown below (and compared with /tS/ and /ts/).



A special rule later applies to lengthen /dZ/ intervocalically. Since words beginning with /dZ/ or /tS/ have a single C-slot word-initially, they take the definite article il rather than lo.

10. Actually his analysis concerns the distribution of un and uno. As we noted in footnote 3 the distribution of these articles parallels that of il and lo.

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